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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/934,002	08/21/2001	Satoshi Seo	SEL 272	7710

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EXAMINER

GARRETT, DAWN L

ART UNIT	PAPER NUMBER
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1774

DATE MAILED: 04/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/934,002

**Applicant(s)**

SEO, SATOSHI

**Examiner**

Dawn Garrett

**Art Unit**

1774

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2004.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☒ Claim(s) 1,2,8,9,15 and 16 is/are allowed.  
6) ☒ Claim(s) 3-7,10-14 and 17-21 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 8-21-01 & 2-21-2003 (for formula 4) is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3-1-2004.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after allowance or after an Office action under *Ex Parte Quayle*, 25 USPQ 74, 453 O.G. 213 (Comm'r Pat. 1935). Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on February 25, 2004 has been entered.

2. The indicated allowability of claims 3-7, 10-14, and 17-21 is withdrawn in view of the newly discovered reference to Grushin et al. (US 6,670,645). Rejections based on the newly cited reference(s) follow.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 3, 7, 10, 14, 17, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grushin et al. (US 6,670,645). Grushin teaches organic electronic devices that emit light and may comprising displays in electronic equipment (see col. 1, lines 26-35) per instant claims

Art Unit: 1774

10, 14, 17, and 21. Figure 1 depicts the structure of the device comprising the following layers: cathode (150) (see col. 15, line 18), electron transport layer (140) (see col. 15, line 5), light emitting layer (130) (see col. 13, line 43), hole transport layer (120) (see col. 14, line 46), and anode (110) (see col. 13, line 35) (see also figure 1). Grushin teaches the hole transport material may comprise copper phthalocyanine (see col. 14, lines 46-65) dispersed in a polymer such as polystyrene and polycarbonate (see col. 15, lines 1-4) as the hole transporting layer (120).

Copper phthalocyanine reads upon the requirement for a hole transporting layer comprising a compound comprising transition metal as copper is a transition metal. Grushin fails to *exemplify* a device comprising copper phthalocyanine dispersed in a polymer. It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected copper phthalocyanine as the hole transporting material and to have dispersed it in a polymer to form a hole transporting layer for the device, because Grushin clearly teaches the disclosed hole transporting materials may be disposed in a polymer to form a hole transporting layer.

5. Claims 4-6, 11-13, and 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grushin (US 6,670,645) in view of Hseih et al. (US 5,558,904). Grushin teaches organic electronic devices that emit light and may comprising displays in electronic equipment (see col. 1, lines 26-35) per instant claims 11-13 and 18-20. Figure 1 depicts the structure of the device comprising the following layers: cathode (150) (see col. 15, line 18), electron transport layer (140) (see col. 15, line 5), light emitting layer (130) (see col. 13, line 43), hole transport layer (120) (see col. 14, line 46), and anode (110) (see col. 13, line 35) (see also figure 1). Grushin teaches the hole transport material may comprise copper phthalocyanine (see col. 14, lines 46-

Art Unit: 1774

65) dispersed in a polymer such as polystyrene and polycarbonate (see col. 15, lines 1-4) as the hole transporting layer (120). Copper phthalocyanine reads upon the requirement for a hole transporting layer comprising a compound comprising transition metal as copper is a transition metal. Grushin fails to *exemplify* a device comprising copper phthalocyanine dispersed in a polymer. It would have been obvious to one of ordinary skill in the art at the time of the invention to have selected copper phthalocyanine as the hole transporting material and to have dispersed it in a polymer to form a hole transporting layer for the device, because Grushin clearly teaches the disclosed hole transporting materials may be disposed in a polymer to form a hole transporting layer.

Although Grushin teaches an electron transport layer is desired between the cathode and the light emitting layer (see col. 15, lines 5-17), Grushin fails to teach specifically the electron transporting layer comprises a polymer or comprises an alkali, alkaline earth or transition metal in the layer. Hsieh et al. teaches, in analogous art, preferred electron transport materials for electroluminescent devices include alkali and alkaline-earth metals and electron transporting polymers (see col. 6, lines 3-12). It would have been obvious to one of ordinary skill in the art to have selected a combination of electron transporting polymer and an alkali or alkaline earth metal for the electron transporting layer of the Grushin device, because one would have expected these materials to perform an electron transporting function as desired for the electron transporting layer of Grushin. In addition, it is obvious to use a combination of two compounds useful for the same purpose.

*Allowable Subject Matter*

6. Claims 1, 2, 8, 9, 15, and 16 are allowed for the reasons of record. The prior art fails to teach the specific polymeric structural formulas as required by the devices of claims 1 and 2.


*Conclusion*

7. If a copy of a provisional application listed on the bottom portion of the accompanying Notice of References Cited (PTO-892) form is not included with this Office action and the PTO-892 has been annotated to indicate that the copy was not readily available, it is because the copy could not be readily obtained when the Office action was mailed. Should applicant desire a copy of such a provisional application, applicant should promptly request the copy from the Office of Public Records (OPR) in accordance with 37 CFR 1.14(a)(1)(iv), paying the required fee under 37 CFR 1.19(b)(1). If a copy is ordered from OPR, the shortened statutory period for reply to this Office action will not be reset under MPEP § 710.06 unless applicant can demonstrate a substantial delay by the Office in fulfilling the order for the copy of the provisional application. Where the applicant has been notified on the PTO-892 that a copy of the provisional application is not readily available, the provision of MPEP § 707.05(a) that a copy of the cited reference will be automatically furnished without charge does not apply.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is 571-272-1523. The examiner can normally be reached Monday through Friday during normal business hours. Please allow the examiner twenty-four hours to return your call.

If reasonable attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached at 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
DAWN GARRETT  
EXAMINER  
ART UNIT 1774

D.G.  
April 2, 2004